IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

GODO KAISHA IP BRIDGE 1,
 	
    Plaintiff,
 	
v.
 	
TELEFONAKTIEBOLAGET LM
ERICSSON and ERICSSON INC.,
 	
    Defendants.
	§
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		Case No. 2:21-CV-213-JRG
		(Lead Case)
		
		JURY TRIAL DEMANDED

GODO KAISHA IP BRIDGE 1,
 	
    Plaintiff,
 	
v.
 	
NOKIA SOLUTIONS AND NETWORKS
OY, and NOKIA OF AMERICA
CORPORATION,
 	
    Defendants.
	§
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		Case No. 2:21-CV-215-JRG
		(Member Case)
		
		JURY TRIAL DEMANDED

DEFENDANTS' RESPONSIVE *MARKMAN* BRIEF

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4	Highlighted Excerpts of *The New Shorter Oxford English Dictionary* (1993)
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INTRODUCTION

Defendants respectfully respond to IP Bridge's Opening Claim Construction Brief (Dkt. 69, "Op. Br."). The parties' disputes result from IP Bridge's attempt to escape either the language of its own claims or the clear and unmistakable disavowals of claim scope during prosecution. Defendants respectfully request that the Court reject IP Bridge's efforts and adopt Defendants' proposed constructions.

ARGUMENT

I.   THE '909 PATENT

A.   Background of the '909 Patent

The '909 patent purports to solve a problem relating to existing "digital radio communications system[s] using a multicarrier communication scheme" ('909 patent at 1:13-15). The '909 patent discloses that the prior art included a "data channel for transmitting voice data and/or image data and a control channel for controlling a communication station at another end and a communication state" (*id.* at 1:15-17). In the prior art, "the center frequency of a data channel" was "different from the center frequency of a control channel," which (according to the patent) could slow down the processing of a received signal (*id.* at 1:32-35, 1:47-57). As a solution, the '909 patent proposes that the control channel and data channel each be assigned to subcarriers that share a *common* center frequency (*see, e.g.*, *id.* at 1:66-2:7, 7:42-48, 3:28-38).

B.   "an OFDM multicarrier signal comprising a first plurality of subcarriers and a second plurality of subcarriers" (Claims 1, 5)

IP Bridge's Construction	Defendants' Construction
This portion of the preamble is limiting, and should be construed as: "an orthogonal frequency division multiplexed multicarrier signal comprising a first plurality of subcarriers and a second plurality of subcarriers"	The disputed preamble language is limiting, and should be construed as "an orthogonal frequency division multiplexed multicarrier signal that is not time division multiplexed comprising a first plurality of subcarriers and a second plurality of subcarriers"

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The parties agree that the language "an OFDM multicarrier signal comprising a first plurality of subcarriers and a second plurality of subcarriers" in the preambles of claims 1 and 5 is limiting. But the parties dispute whether the "orthogonal frequency division multiplexed multicarrier signal" can be "time division multiplexed." Defendant's proposed construction should be adopted because the Applicant disclaimed a signal that is time division multiplexed.

Prosecution disclaimer "preclude[es] patentees from recapturing through claim interpretation specific meanings disclaimed during prosecution." *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1323 (Fed. Cir. 2003). If a patentee has disavowed a certain meaning to obtain a patent in a way that is "clear and unmistakable," then the disclaimer "narrows the ordinary meaning of the claim congruent with the scope of the surrender." *Id.* at 1324, 1325-26. "Prosecution disclaimer can arise from both claim amendments and arguments," and "an applicant's argument that a prior art reference is distinguishable on a particular ground can serve as a disclaimer of claim scope even if the applicant distinguishes the reference on other grounds as well." *Traxcell Techs., LLC v. Nokia Sols. & Networks Oy*, 15 F.4th 1136, 1141 (Fed. Cir. 2021) (internal citations omitted). Here, during prosecution, the Applicant clearly and unmistakably disavowed a signal that is time division multiplexed because the Applicant amended the claims to require an "orthogonal frequency division multiplexed multicarrier signal" and distinguished prior art based on this amendment because the art disclosed signals that were time division multiplexed. During prosecution, the Applicant distinguished a prior art system disclosed in U.S. Patent No. 6,522,638 ("Haugli") (Ex. 3 ('909 Prosecution History) at IPB213_0000495 (emphasis added)).

Haugli discloses a system that used both FDM (frequency division multiplexing) and TDM (time division multiplexing). For example, Haugli discloses this chart:

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Op. Br., Ex. L (Haugli) at Fig. 2 (annotated)[1]
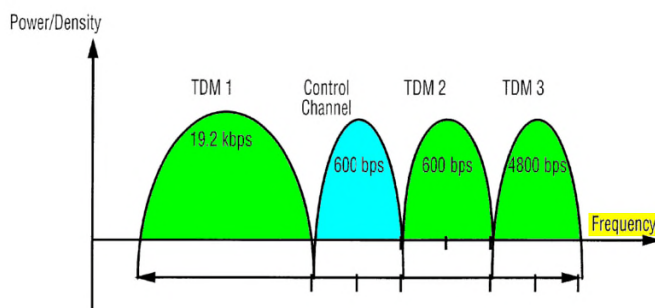
FIG. 2

The x-axis represents frequency and the y-axis represents the power of the signal (*see also* Ex. 3 ('909 Prosecution History) at IPB213_0000494). The frequencies along the x-axis are divided up into four channels; three data channels in green and one control channel in blue. Because the channels are divided in frequency, this system is referred to as a "frequency division multiplexed", or "FDM," system. In addition, each of these frequency data channels are also divided in time, so they are labeled "TDM1," "TDM2," and "TDM3." Thus, for example, a first signal could be transmitted in the frequency band labeled TDM1 at "time 0," and a second signal could be transmitted in the same frequency band at "time 2."[2] Thus, the signals in Haugli are both frequency division and time division multiplexed.

The patent examiner found that Haugli discloses the allegedly inventive concept in the application that led to the '909 patent, *i.e.*, that the control channel (in blue above) and data channels (in green) shared the same center frequency (Ex. 3 ('909 Prosecution History) at

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[1] The figure has been annotated to show the data channels in green and control channel in blue.

[2] IP Bridge's argument that in Haugli the "three signals ['TDM 1,' 'TDM 2,' and 'TDM 3' in Haugli's Figure 2] are sent simultaneously" is wrong. Haugli explains that the control channel and three TDM data channels (in Figure 2 above) "are combined in a digital signal processor to form a baseband signal." These signals could not be combined if they did not exist at the same time. Notably, IP Bridge's claim construction expert did not support this position in his declaration.

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IPB213_0000474-475). To overcome this rejection, the Applicant modified the claim to require

OFDM (orthogonal frequency division multiplexing) and contrasted that with the TDM aspect of

the system in Haugli:

> The new claims emphasize differences over Haugli in that, *inter alia*, they are directed to an OFDM radio transmitting apparatus and method. As noted above, the technique of Haugli's Figs. 2 and 3, **by contrast**, relates to a *TDM* system

(Ex. 3 ('909 Prosecution History) at IPB213_0000495, IPB213_0000519 (emphasis added).) As

IP Bridge admits, OFDM is a type of FDM:

Op. Br. at 7 (excerpting Ex. M, at 22)
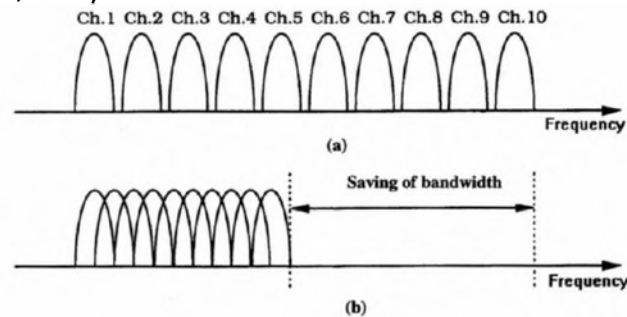
Figure 1.10 Concept of OFDM signal: (a) Conventional multicarrier technique, and (b) orthogonal multicarrier modulation technique.

In FDM (depicted in part (a)), each channel covers a different frequency range (*see* Op. Br., Ex.

M, at 22). And in OFDM (depicted in part (b)), each channel also covers a different frequency

range, but the channels are closer together (*see id.*).

According to IP Bridge, the applicant merely made the point that OFDM is not disclosed

in Haugli, *i.e.*, that Haugli only discloses TDM (*see* Op. Br. at 4-5). As IP Bridge acknowledges,

however, Haugli discloses *both* TDM and FDM (*see id.* at 6 ("Haugli discloses, at best, FDM and

TDM")). And as IP Bridge acknowledges, it was known at the time that OFDM and TDM could

be "used together in a single system." The Applicant could have—but chose *not* to—distinguish

Haugli based only on its failure to use the particular type of FDM known as OFDM. Instead, the

Applicant chose to *contrast* the new *OFDM* requirement of the claim *with the TDM* disclosure in

Haugli. A POSITA would understand the Applicant's distinction of Haugli as TDM to be a disclaimer of TDM techniques (Mahon Decl. at ¶¶ 40-48).

A patent owner, like IP Bridge, "cannot escape the import of [an applicant's] statements to the Patent Office by suggesting they were not needed to overcome the Examiner's rejection. . . . [T]he public is entitled to rely on these statements as defining the scope of the claims." *Data Engine Techs. LLC v. Google LLC*, 10 F.4th 1375, 1383 (Fed. Cir. 2021). And "an applicant's argument that a prior art reference is distinguishable on a particular ground can serve as a disclaimer of claim scope even if the applicant distinguishes the reference on other grounds as well." *Traxcell Techs.,* 15 F.4th at 1141. So even if the Applicant *could* have argued only that Haugli disclosed FDM techniques that were outside the scope of the claimed OFDM techniques, the Applicant *didn't* make only that argument. Instead, the Applicant argued—and elicited allowance—by arguing that Haugli disclosed TDM techniques that were outside the scope of the claimed OFDM techniques. IP Bridge cannot now re-write that history.

II.   THE '594 PATENT

A.   Background of the '594 Patent

The '594 patent is generally directed to transmission and reception of sounding reference signals (SRSs) and random access preambles in a 4G LTE network ('594 patent at Abstract; Lanning Decl. at ¶ 50). Specifically, the '594 patent purports to solve a problem relating to when, within a subframe, a mobile station should transmit an SRS (Lanning Decl. at ¶ 50). According to the '594 patent, a known, "conventional technique" used the first symbol in a subframe for transmissions of an SRS (*see* '594 patent at 2:26-38; Lanning Decl. at ¶ 50). This purportedly could negatively impact efficiency when the SRS and a preamble were transmitted in the same subframe (*see* '594 patent at 6:46-49; Lanning Decl. at ¶ 50). Instead, the '594 patent teaches that the SRS should be transmitted in the last symbol of a subframe to "minimize interference between

the preamble and the SRS" (*see* '594 patent at 6:64-7:2, 7:17-22, Fig. 5; Lanning Decl. at ¶ 51).

B.   "the guard time during which nothing is transmitted" (Claims 1, 13)

IP Bridge's Construction	Defendants' Construction
"the guard time during which nothing is transmitted by the device transmitting the random access preamble"	"the guard time during which nothing except the SRS is transmitted"

The parties do not dispute that the claims and specification are directed to transmission of an SRS during a guard time (*see, e.g.*, '594 patent at 6:64-7:2, Fig. 5, Cl. 1 ("receiv[ing] a Sounding Reference Signal (SRS) that is mapped to a position of a guard time . . .")). But the parties dispute whether the claim covers an embodiment in which the same UE transmits a random access preamble and then an SRS during the guard time following the random access preamble transmission. Under IP Bridge's construction, the UE transmitting the SRS *cannot* also transmit the random access preamble. But this construction is contrary to the plain language of the claim and principles of claim differentiation, and it reads out a disclosed embodiment. Thus, the Court should adopt Defendants' construction, under which the UE transmitting the SRS *can* also transmit the random access preamble.

"The inquiry into how a [POSITA] understands a claim term provides an objective baseline from which to begin claim interpretation." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005). Here, the claims require receiving an SRS that is "mapped to a position of a guard time" ('594 patent at Cls. 1, 13). The guard time to which the SRS is mapped is "*the* guard time during which nothing is transmitted" (*id.*). A POSITA would have understood that the claims thus require that the SRS is mapped to a guard time in which nothing would otherwise be transmitted (Lanning Decl. at ¶¶ 61-63). IP Bridge does not dispute that an SRS is transmitted during the guard time. Instead, IP Bridge argues that the claims require the SRS to be transmitted by a UE that did not transmit the random access preamble (*see* Op. Br. at 9). But the claim language is not so narrow.

It does not preclude one UE from transmitting both a random access preamble and an SRS during the guard time, as illustrated in the following annotation of Figure 5:

'594 patent at Fig. 5 (annotated)
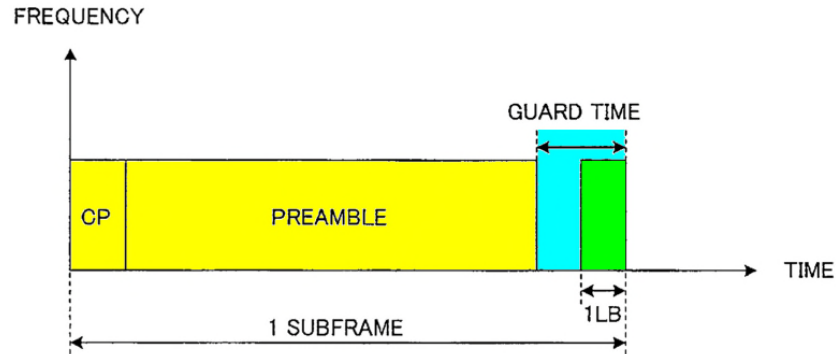
Thus, Defendants' construction is consistent with the plain claim language.

IP Bridge's construction should also be rejected because it is inconsistent with the specification. "[T]here is a strong presumption against a claim construction that excludes a disclosed embodiment." *Immunex Corp. v. Sanofi-Aventis U.S. LLC*, 977 F.3d 1212, 1220 (Fed. Cir. 2020) (citation omitted). The '594 patent discloses an embodiment in which the mobile station transmitting the random access preamble can also transmit an SRS in the guard time (*see, e.g.*, '594 patent at 13:19-23 (emphasis added) ("For example, *the mobile station may* arrange an SRS in a guard time of a preamble to be transmitted in the preamble transmission field that matches the SRS transmission field and *simultaneously transmit the preamble and the SRS arranged in the guard time of the preamble*.")). IP Bridge's construction would exclude this disclosed embodiment and thus should be rejected.[3]

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[3] IP Bridge cites *TIP Systems, LLC v. Phillips & Brooks/Gladwin, Inc.* to suggest that this embodiment is unclaimed (*see* Op. Br. at 11 (citing 529 F.3d 1364, 1373 (Fed. Cir. 2008))). In *TIP Systems*, the claim language supported excluding the disclosed embodiment. *See* 529 F.3d at 1373 ("[T]he mere fact that there is an alternative embodiment . . . does not outweigh the language of the claim"). Here, in contrast, claim differentiation demonstrates that the claim language does *not* support excluding the disclosed embodiment.

The doctrine of claim differentiation further supports Defendants' construction. Of relevance here, the claims require (*i*) transmission of an SRS mapped to a position of a guard time and (*ii*) transmission of a random access preamble (*see* '594 patent at Cls. 1, 13). The parties agree that the claims require transmission of the SRS by a mobile station apparatus. But Defendants' construction allows the random access preamble to be transmitted *either* by the same mobile station apparatus that transmitted the SRS *or* by another mobile station apparatus. IP Bridge, in contrast, argues that the random access preamble cannot be transmitted by the same mobile station that transmitted the SRS (*i.e.*, the preamble can *only* be transmitted by another mobile station apparatus) (*see* Op. Br. at 11 ("IP Bridge's construction . . . makes clear for the jury that the device that adds the guard time to the preamble d[o]es not transmit anything during that guard time")).

But IP Bridge's proposed construction would render claim 5 meaningless. Claim 5 (which depends on claim 1) claims "receiv[ing] the random access preamble transmitted from *another* mobile station apparatus" (*see* '594 patent at Cl. 5 (emphasis added)). According to claim differentiation, claim 1 must have broader scope than claim 5, and therefore must allow the random access preamble to be transmitted *either* by the same mobile station apparatus that transmitted the SRS *or* by "another" mobile station apparatus. *See Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1380 (Fed. Cir. 2006). So independent claim 1 (and, by extension, similarly worded independent claim 13) must allow the SRS and preamble to be transmitted by the same mobile station. Because IP Bridge's construction would render claim 5 meaningless, it should be rejected. *See Baxalta Inc. v. Genentech, Inc.*, 972 F.3d 1341, 1346 (Fed. Cir. 2020); *Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.*, 520 F.3d 1358, 1362 (Fed. Cir. 2008).

Finally, the Court should reject IP Bridge's arguments that the specification and prosecution history somehow narrow the claim scope by describing an embodiment in which

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different UEs transmit the random access preamble and the SRS (Op. Br. at 9-10). Absent

disavowal or lexicography, a claim is entitled to its full scope. *See Home Diagnostics, Inc. v.*

LifeScan, Inc., 381 F.3d 1352, 1357 (Fed. Cir. 2004). IP Bridge never demonstrates (or even

argues) disavowal as to an embodiment in which a single mobile station transmits both the random

access preamble and the SRS. Nor has IP Bridge identified any lexicography that would exclude

such an embodiment. The specification discloses both embodiments and there is no language in

the claims that exclude the second embodiment.

C.   "subframe" (Claims 1, 2, 7, 9, 10, 13)

IP Bridge's Construction	Defendants' Construction
Plain and ordinary meaning	a 1 millisecond time period in a frame

The specification defines a "subframe" as a 1 millisecond time period in a frame, and thus

Defendant's construction should be adopted.

If a specification includes a "definition given to a claim term," then "the inventor's

lexicography governs." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005). Equating

two terms is sufficient to establish lexicography. *See Edwards Lifesciences LLC v. Cook Inc.*, 582

F.3d 1322, 1329 (Fed. Cir. 2009) (holding that the "interchangeable use" of two terms "is akin to

a definition equating the two"); *Integrated Prod. Servs. v. Prod. Control Servs.*, 2013 U.S. Dist.

LEXIS 200117, at *47 (S.D. Tex. Apr. 17, 2013) (emphasis added) (when a patentee "*has chosen*

to equate the terms," "the Court is bound by the patentee's lexicography").

Here, the '594 patent's specification repeatedly equates a "subframe" with a "1

millisecond" time period. To convey equivalence, the specification uses an equal sign ("=") (*see*

'594 patent at 1:26-1:27 ("at 1-subframe intervals=at 1 ms intervals"); *id.* at 2:7 ("one subframe

(=1 ms)"); *id.* at 1:55-56 ("10-subframe intervals=10 ms intervals")). *See also Oplus Techs., Ltd.*

v. Sears Holdings Corp., No. 2:12-cv-05707-MRP-Ex, 2013 U.S. Dist. LEXIS 145917, at *36

(C.D. Cal. Oct. 2, 2013) ("It is a mathematical tautology that the units on either side of an equal sign must be equivalent."). An equal sign is at least as definitional as use of the word "is," which the Federal Circuit has held to "signify that a patentee is serving as its own lexicographer." *See Sinorgchem Co., Shandong v. Int'l Trade Comm'n*, 511 F.3d 1132, 1136 (Fed. Cir. 2007). The specification also discloses that, "[a]ccording to the 3GPP RAN LTE," the random access preamble, its cyclic prefix, and the guard time are "formed with one subframe" with a "time length" "1 ms" ('594 patent at 1:50-54; Lanning Decl. at ¶¶ 53-56). As used in the '594 patent's specification, therefore, a "subframe" is equivalent to a "1 millisecond" time period (Lanning Decl. at ¶¶ 53-56). And because the prefix "sub" indicates that a *sub*frame is shorter than a frame, a POSITA would have understood that the specification explicitly defined a "subframe" as a 1 millisecond time period in a frame (Lanning Decl. at ¶¶ 53-56).

Contrary to IP Bridge's arguments, these are not just "examples" of subframe durations (*see* Op. Br. at 12-13). In its Brief, IP Bridge emphasizes some "e.g." language in the specification:

Op. Br. at 12-13 (highlighted)

- "*According to the 3GPP RAN LTE, for example*, an SRS is formed . . . the mobile station transmits SRSs periodically (*e.g.* at 1-subframe intervals—at 1 ms intervals)" ('594 patent, 1:22-26);

- "*According to the 3GPP RAN LTE*, the preamble is formed . . . the mobile station transmits preambles periodically (*e.g.* at 10-subframe intervals-10 ms intervals)" (*Id.*, 1:55-56);

- "When transmitting an SRS, resources of the time domain and frequency domain may be assigned thereto exclusive of other signals (*e.g. see Non-Patent Document 3*). Here, an SRS is assigned to the first 1 LB in one subframe (~1 ms)" (*Id.*, 2:4-7).

As to the first two bullets, however, the yellow highlighting demonstrates that the "e.g." language refers to exemplary *periods* of SRS and preamble transmission. This does not modify the definitions relating to subframe *duration* (highlighted in green). As to the third bullet, the yellow highlighting demonstrates that "e.g." refers to a document discussing an exemplary *assignment* of resources to an SRS. Again, this does not modify the definition relating to subframe *duration*

(highlighted in green). The use of "e.g." language thus does not undermine the lexicography.

III.   THE '724 PATENT

A.   Background of the '724 Patent

The asserted claims of the '724 patent are directed to alleged problems that arise when a UE is moving at high speeds. According to the patent, UEs moving at high speeds are subject to, among other things, Doppler spread and frequency offset effects that can make it difficult for a receiving base station to detect the random access preamble ('724 patent at 17:47-55; Mahon Decl. at ¶¶ 52-56). To address this alleged problem, the '724 patent discloses reordering the root sequences that are used to generate random access preambles ('724 patent at Fig. 23; Mahon Decl. at ¶¶ 57-59). To determine this order, the '724 Patent describes a method for generating new index values using a particular equation ('724 patent at 18:39-52; Mahon Decl. at ¶¶ 57-59).

B.   "a plurality of sequences . . . sequence number" (Claims 12, 18) and "the required cyclic shift . . . high speed" (Claim 13)

Claim Term	IP Bridge's Construction	Defendants' Construction
"a plurality of sequences, which are indexed by the indices having consecutive numbers in order of generally increasing to a maximum value and then decreasing, from the maximum value, a required cyclic shift amount according to a sequence number" (Claims 12, 18)	"a plurality of sequences, which are indexed by the indices having consecutive numbers, such that the sequences are indexed in order of generally increasing required cyclic shift amount to a maximum value and then generally decreasing required cyclic shift amount from the maximum value"	Indefinite because the included terms (addressed separately) are indefinite; IP Bridge's proposed rewriting of claim is improper.
"the indices having consecutive numbers in order of generally increasing to a maximum value and then decreasing, from the maximum value" (Claims 12, 18)	Not indefinite; should be construed according to the composite term	Indefinite
"a required cyclic shift amount according to a sequence number"	Not indefinite; should be construed according to the composite term	Indefinite

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(Claims 12, 18)		
"the required cyclic shift amount is a required cyclic shift amount for a mobile station moving at high speed" (Claim 13)	Plain and ordinary meaning	Indefinite

There are three core disputes related to the identified terms: (*i*) whether the terms reciting "generally increasing" are indefinite; (*ii*) whether the terms reciting "required cyclic shift amount" are indefinite; and (*iii*) whether the composite claim term should be rewritten as IP Bridge proposes. Each dispute is addressed below.

> **1.   "the indices having consecutive numbers in order of generally increasing to a maximum value and then decreasing, from the maximum value" (Cl. 12, 18)**

The phrase "generally increasing" renders the claims indefinite. When "faced with a 'purely subjective' claim phrase," courts are to "look to the written description for guidance." *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014) (citation omitted). The intrinsic record "must provide objective boundaries" for a POSITA. *Id.* Here, the claims recite index values corresponding to cyclic shift amounts that are "*generally* increasing." But "generally" is a purely subjective term that also is subject to multiple inconsistent meanings. Moreover, the specification does not provide any guidance to resolve these ambiguities. The specification discloses index values corresponding to cyclic shift amounts that are increasing. And there is no description of the objective boundaries as to what "*generally* increasing" means, other than "increasing." Because the specification lacks objective boundaries for a POSITA to discern the scope of "generally increasing" with reasonable certainty (Mahon Decl. at ¶¶ 62-74), claims 12 and 18 are indefinite.

"The inquiry into how a [POSITA] understands a claim term provides an objective baseline from which to begin claim interpretation." *Phillips*, 415 F.3d at 1313 (citation omitted). The phrase

"generally increasing" would not have had a readily discernable meaning to a POSITA (Mahon Decl. at ¶ 63). As Dr. Mahon testified, there was no standard mechanism for determining whether a sequence of numbers is "generally increasing," and it is not the case that a POSITA would "know it when he sees it" (Mahon Decl. at ¶ 63). This is underscored by the fact that the parties have submitted at least *five* alternative proposals for what "generally increasing" means, including different proposals from IP Bridge and its own expert:

- Dr. Mahon, Defendants' expert, testified that "generally increasing" could mean "increasing universally and without exception; increasing only for the most part; or even increasing only some of the time" (Mahon Decl. at ¶ 66).

- Dr. Akl, IP Bridge's expert, testified that "generally increasing" "refers to something that *increases or stays the same*, but does not decrease" (Op. Br., Ex. R ("Akl Decl.") at ¶ 54 (emphasis added)).[4]

- IP Bridge states that "generally increasing" "refers to something that *increases with possible periods of staying the same*, but does not decrease" (Op. Br. at 19 (emphasis added)).

These various definitions confirm that the phrase had no readily discernable meaning.

Moreover, the specification does not provide any clarity regarding any objective boundary for "generally increasing." *See Interval Licensing*, 766 F.3d at 1373. Apart from the claims, the patent never uses the phrase "generally increasing," and the specification does not describe how to interpret any of the example sets of indices to determine whether the indices are "*generally* increasing" or not. For example, Figure 23 provides an order of sequences corresponding to certain cyclic shift values (Mahon Decl. at ¶ 67-68). Dr. Mahon plotted Figure 23's "index" values on the horizontal axis and "maximum applicable cyclic shift amount Δ value" on the vertical axis (*id.*):

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[4] Defendants note that Dr. Akl's definition of "generally increasing" would, on its face, include a horizontal flat line because it "stays the same" and "does not decrease." This demonstrates that Dr. Akl's opinions are not credible and therefore deserve little or no weight.

Mahon Decl. at ¶ 67
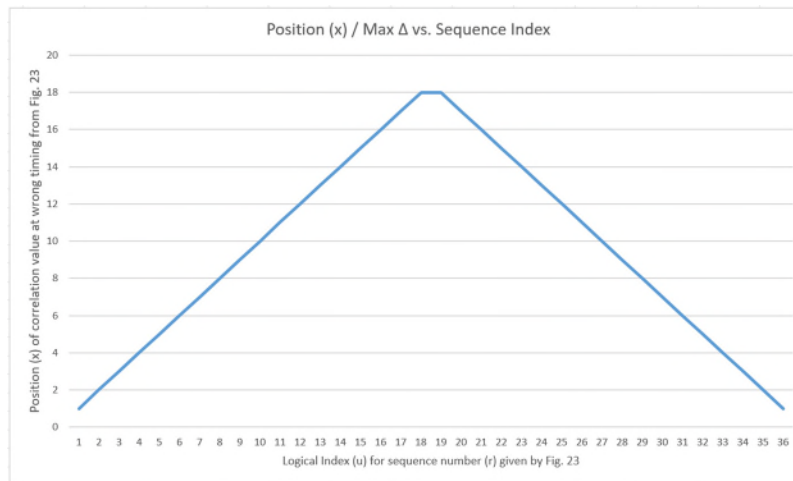
Focusing on the left side, the graph increases to a maximum of 18 without any deviation, *i.e.*, it is

increasing (Mahon Decl. at ¶ 68). The specification does not provide any guidance as to how the

cyclic shift values could deviate from this increasing while still practicing the claimed "*generally*

increasing," nor is there any suggestion that doing so would be a reasonable application of the '724

patent's teachings (Mahon Decl. at ¶ 68).[5]

Contrary to IP Bridge's assertion, the '724 patent's Figure 24 also does not provide

sufficient guidance to a POSITA (Op. Br. at 19-20 (citing Akl Decl. at ¶54)). IP Bridge and its

expert focus on this figure to support their competing definitions of "generally increasing" (*see*

id.). The specification, however, does not describe Figure 24 as an illustration of "generally

increasing" cyclic shift amounts. Rather, presumably understanding that the specification lacks the

requisite disclosure, it appears that IP Bridge and its expert have attempted to craft a definition

that tracks the features of Figure 24. But "[t]he fact that [the patent holder] can articulate a

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[5] This is similar to *Acorn Semi, LLC v. Samsung Elecs. Co.*, No. 2:19-CV-00347-JRG, 2020 WL
6136847 (E.D. Tex. Oct. 16, 2020). There, this Court held that the phrase "generally dependent"
rendered claims indefinite because, apart from the claims, the patents at issue never used the phrase
"generally dependent," and the specification did not include any "description of what it means for
the height to 'generally depend' on any characteristic." *Id.* at *18-*19.

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definition supported by the specification . . . does not end the inquiry." *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1251 (Fed. Cir. 2008). Figure 24 does not cure the underlying problem, which is that the specification never explains how to determine what is *not* "generally increasing." Figure 24 does not provide a POSITA with an objective boundary. *See Interval Licensing*, 766 F.3d at 1373.

The example below further illustrates why IP Bridge's interpretation of "generally increasing" does not cure the problem. In his "Random Values 1" graph, Dr. Mahon plotted index values on the horizontal axis and random numbers between 1 and 18 on the vertical axis:

Mahon Decl. at ¶¶ 69-70
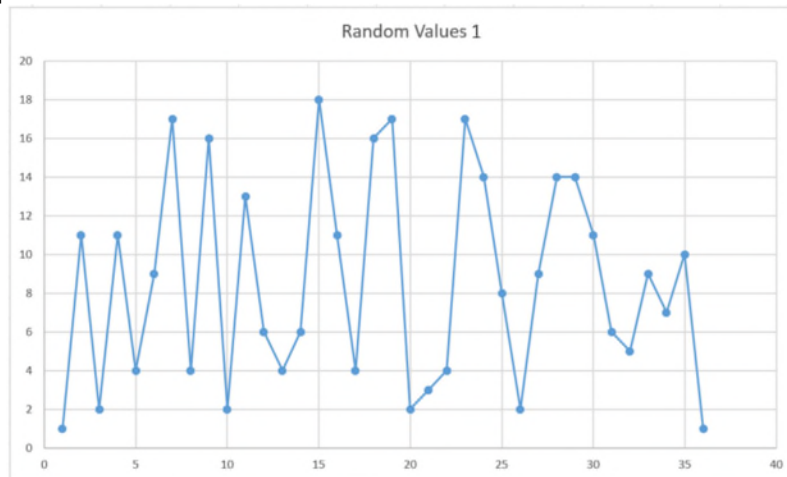
According to IP Bridge's definition, "generally increasing" "refers to something that increases with possible periods of staying the same, but does not decrease" (Op. Br. at 19). In the "Random Values 1" graph, one POSITA might decide that the values are "generally increasing" to a maximum because as compared to the initial value (index 1), the values reach the maximum (index 15) without ever decreasing below the initial value. But another POSITA might decide that the values are *not* "generally increasing" to a maximum because between the minimum (index 1) and maximum (index 15), the values *do* decrease (*e.g.*, from index 2 to index 3). Thus, it would not

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have been reasonably certain to a POSITA whether the "Random Values 1" graph falls within the scope of "*generally* increasing to a maximum value" (Mahon Decl. at ¶ 69-70; *see also id.* at ¶¶ 71-72 (also analyzing a second plot of random numbers)).

Because the intrinsic record lacks guidance as to the phrase "generally increasing," it is appropriate to consider dictionary definitions to understand how a POSITA would have understood the claim language. *See, e.g.*, *Quantum Corp. v. Rodime, PLC*, 65 F.3d 1577, 1581 (Fed. Cir. 1995). But dictionary definitions merely confirm that the phrase "generally increasing" would have been purely subjective because it is vague and subject to multiple conflicting interpretations (*see also* Mahon Decl. at ¶ 63-66). For example, a prior art edition of the Oxford English Dictionary recited various definitions for "generally" (Ex. 4 at 1074). But these definitions are conflicting because one recites "[a]s a whole, collectively; universally, *without exception*" while another recites "[a]s a general rule; usually" (*id.* (emphasis added)). Moreover, the term "general" (which is used in the second definition of "generally") is, itself, given multiple conflicting definitions. The same dictionary defines "general" as "true for all or nearly all cases coming under its terms," but also "*indefinite, imprecise; vague*" (*id.* at 1073 (emphasis added)). Given these conflicting definitions, the meaning of "generally increasing" would have depended on which definitions an individual was inclined to apply. So "generally increasing" was a subjective term of degree that depended on "the unpredictable vagaries of any one person's opinion." *See Intellectual Ventures I, LLC v. T-Mobile USA, Inc.*, 902 F.3d 1372, 1381 (Fed. Cir. 2018) (citation omitted).

Thus, the phrase "generally increasing" is "facially subjective claim language" that lacks an "objective boundary." The claims are indefinite. *See Interval Licensing*, 766 F.3d at 1373-74.

2.   "a required cyclic shift amount according to a sequence number" (Cl. 12, 18) and "required cyclic shift amount for a mobile station moving at high speed" (Cl. 13)

The phrases including a "required cyclic shift amount" also render the claims indefinite. In

the claims, the "required cyclic shift amount[s]" determine the basis on which the claimed "indexing" is performed. But what is or may be "required" in any given context is purely subjective. Again, when "faced with a 'purely subjective' claim phrase," courts are to "look to the written description for guidance," and the intrinsic record "must provide objective boundaries for those of skill in the art." *Interval Licensing LLC*, 766 F.3d at 1371. The '724 patent's specification does not provide objective boundaries on how to determine what is a "required" cyclic shift amount in the context of the claims (Mahon Decl. at ¶¶ 75-80). The phrases including "required cyclic shift amount" thus render claims 12, 13, and 18 indefinite.

The "required cyclic shift amount" terms are purely subjective because, at the time of the alleged invention, there was no recognized or accepted method in the art for determining a "required cyclic shift amount according to a sequence number" or a "required cyclic shift amount for a mobile station moving at high speed" (Mahon Decl. at ¶ 76). In the field of the invention, sequences are used for many purposes and what cyclic shift amount would have been "required" would have varied from one POSITA to another, depending on their subjective goals and the particular application. Consequently, a POSITA would have needed to consult the '724 patent's specification to ascertain an objective boundary for a "required cyclic shift amount" (*see id.*). But the '724 patent's specification lacks an objective boundary for a "required cyclic shift amount according to a sequence number" or a "required cyclic shift amount for a mobile station moving at high speed." (Mahon Decl. at ¶ 77-80).

Contrary to IP Bridge's arguments (*see* Op. Br. at 20-21), the specification's description of the "required cyclic shift amount" based on the delays in the cell does not provide an objective boundary for the "required cyclic shift amount" according to a sequence number or according to the mobile station's speed. As IP Bridge admits, the "required cyclic shift amount" in the

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specification depends on expected delays in the cell (*see* Op. Br. at 20 ("The '724 patent specification teaches that the 'required cyclic shift amount Δ is set so as to be greater than' delays in 'the relevant cell.'"); *see also* '724 patent at 19:26-33). As described in the *specification*, therefore, a POSITA would have recognized "required cyclic shift amount" to depend entirely and exclusively on the geography of the cell (*i.e.*, the area covered by the cell and the expected multipath delay time for transmissions in the cell) (Mahon Decl. at ¶ 78; Op. Br. at 21 ("the required cyclic shift changes, depending on the cell size"). As recited in *claims 12 and 18*, in contrast, the "required cyclic shift amount" must depend on either the sequence number or the speed of the UE (Mahon Decl. at ¶ 78). So a POSITA would not have understood the specification's description of "required cyclic shift amount" to teach a technique for determining either the claimed "required cyclic shift depending upon a sequence number" or the claimed "required cyclic shift for a mobile station moving at high speed" (as required by the claims) (Mahon Decl. at ¶ 78).[6] If anything, the disclosure on which IP Bridge relies demonstrates that the amount of cyclic shift that is required depends on context, and the specification provides objective criteria for what is required only in the context of cell delay, and not for the context of the claims.

IP Bridge also mistakenly attempts to support its position using Figure 23's disclosure of a "maximum applicable cyclic shift amount Δ" (Op. at 20-21). A POSITA would not have understood Figure 23's "applicable cyclic shift amount Δ" to correspond with the claimed "required cyclic shift amount" because the terms use different language to convey substantively different concepts (*see* Mahon Decl. at ¶ 79). A POSITA would have understood that a "*maximum*

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[6] The Court should also disregard IP Bridge's argument that "required cyclic shift amount" cannot be indefinite because each of the individual terms "required," "amount," and "cyclic shift" each have meaning (Op. Br. at 21). If that were enough to avoid indefiniteness, then no claim using pre-existing words could be held indefinite, which is indisputably incorrect. *See, e.g.*, *Interval Licensing*, 766 F.3d at 1373.

applicable cyclic shift amount Δ" is a "maximum" value that should not be exceeded (*see id.*); in contrast, the claimed "*required* cyclic shift amount" connotes a minimum value or a specific required amount. Thus, a POSITA would not have understood Figure 23's "applicable cyclic shift amount Δ" to correspond to the claimed "required cyclic shift amount" (*id.*).

The Court should also reject IP Bridge's argument that a POSITA would have understood the claimed "required cyclic shift amount" to be the cyclic shift amount "required by a base station" (Op. Br. at 20-21). The claims do not recite any "base station," and IP Bridge has not proposed any construction that includes a base station. Moreover, the "required cyclic shift amount" of claim 13 is "for a mobile station" and not for a base station. Finally, IP Bridge's argument is a tautology that lacks any connection to the intrinsic record. As explained earlier, a POSITA would have recognized "required cyclic shift amount" described in the specification to depend exclusively on the geography of the cell. The '724 patent never describes how that geography would relate to any "sequence numbers," so there is no way to determine what the "required cyclic shift amount according to a sequence number" should be.

Finally, the Court should disregard IP Bridge's contention that Defendants' expert, Dr. Mahon, advanced an "improper reading of the claim language" (Op. Br. at 22). IP Bridge insists that Dr. Mahon was wrong to interpret the claims so that the "required cyclic shift amount" is "according to a sequence number" (*id.*). But that's exactly what the claim language says:

'724 patent at Cl. 13 (highlighted)
12. A sequence reporting apparatus comprising: an allocating section configured to allocate at least one of sequences with consecutive indices among a plurality of sequences, which are indexed by the indices having consecutive numbers in order of generally increasing to a maximum value and then decreasing, from the maximum value, a required cyclic shift amount according to a sequence number; and a reporting section configured to report the index of the allocated sequence.

Moreover, IP Bridge provides no alternative interpretation that gives "according to a sequence

number" any meaning. Thus, there was no error in Dr. Mahon's reading of the claim.[7]

Thus, the '724 patent's intrinsic record lacks an objective boundary for a "required cyclic shift amount." The claims including that phrase are therefore indefinite. *See Interval Licensing*, 766 F.3d at 1373-74.

3.   The claims should not be rewritten as proposed by IP Bridge

Rather than address either the "generally" or the "required" terms individually, IP Bridge proposes almost the entire body of the claim for construction. But IP Bridge's "construction" does not cure the indefiniteness issues addressed above. What's more, that "construction" is nothing more than an egregious attempt to rewrite the claim:

Original Claim Language	IP Bridge's Proposed Revision
"a plurality of sequences, which are indexed by the indices having consecutive numbers in order of **generally** increasing to a maximum value and then decreasing, from the maximum value, **a required cyclic shift amount according to a sequence number**"	"a plurality of sequences, which are indexed by the indices having consecutive numbers, **such that the sequences are indexed** in order of **generally** increasing **required cyclic shift amount** to a maximum value and then **generally** decreasing **required cyclic shift amount** from the maximum value"

IP Bridge's construction substantially redrafts the claim language by eliminating, moving, and adding requirements in a manner that is inconsistent with the plain meaning to a POSITA (Mahon Decl. at ¶¶ 82-86). That is improper and should be rejected. *Becton Dickinson & Co. v. C.R. Bard, Inc.*, 922 F.2d 792, 799 n.6 (Fed. Cir. 1990) ("Nothing in any precedent permits judicial

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[7] In a footnote, IP Bridge proposes further rewriting the claim to move the phrase "according to a sequence number" from its current location to abut the word "indexed" (*see* Op. Br. at 21 (citing n.3)). This is improper because claims should not be rewritten to avoid indefiniteness. *See Amgen Inc. v. Hoechst Marion Roussel*, 314 F.3d 1313, 1342 (Fed. Cir. 2003) (citation and internal marks omitted) ("It is not our function to rewrite indefinite claims to preserve their validity."). Moreover, IP Bridge's proposal entirely alters the meaning of the claim. The original claim recites that "a *required cyclic shift amount*" is "according to a sequence number." As IP Bridge admits, however, its proposed change would alter the claim so that "the *indexing of sequences* is accomplished by sequence number" (*see* Op. Br. at 19 n.3). This should not be sustained.

redrafting of claims."). The following summarizes the improper changes: (*i*) IP Bridge removes

the requirement of "according to a sequence number;" (*ii*) IP Bridge broadens the claim to allow

for "generally decreasing" in addition to "generally increasing;" and (*iii*) IP Bridge adds the

language "such that the sequences are indexed."

First, as to removing the phrase "according to a sequence number"—the most glaring of

the supposed "clarifications"—IP Bridge offers no affirmative reason for the Court to rewrite the

claim in this manner and remove the "required cyclic shift amount['s]" dependence on a sequence

number (*see* Op. Br. at 18-19). IP Bridge's proposed construction is thus "contrary to the well-

established principle that claim language should not be treated as meaningless." *HZNP Meds. LLC*

v. Actavis Labs. UT, Inc., 940 F.3d 680, 692 (Fed. Cir. 2019) (citation and internal marks omitted).

Second, IP Bridge improperly seeks to distribute the "generally" claim term based on the

"series modifier" doctrine (Op. Br. at 16). But the "series-modifier doctrine only applies in limited

circumstances." *Helsinn v. Teva Pharm. United States*, 2018 U.S. App. LEXIS 37293, at *11 (Fed.

Cir. 2018). Those limited circumstances are when a modifier is used with a "conjunctive list." *See*

SIMO Holdings v. H.K. Ucloudlink Network Tech., 983 F.3d 1367, 1377 (Fed. Cir. 2021);

SuperGuide Corp. v. DirecTV Enters., 358 F.3d 870, 886 (Fed. Cir. 2004). But the '724 patent's

claims do not recite a list. They recite "generally increasing to a maximum value and *then*

decreasing, from the maximum value" ('724 patent, at Cls. 12, 18 (emphasis added)). That this is

not a list is clear from the word "*then*," which signals that the subsequent language describes a

feature that is independent from the "generally increasing" part of the claim. And this is plainly

different from the conjunctive lists in *SIMO Holdings* and *SuperGuide*. *See SIMO Holdings*, 983

F.3d at 1376 (applying series-modifier doctrine to "a plurality of memory, processors, programs,

communication circuitry, authentication data . . . and non-local calls database"); *SuperGuide*, 358

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F.3d at 886 (applying series-modifier doctrine to "at least one of a desired program start time, a desired program end time, a desired program service, and a desired program type"). The series-modifier doctrine is inapplicable to the "increasing"/"decreasing" claim terms because "generally" modifies only "increasing to a maximum value." It does not modify "decreasing" at all.[8]

Finally, as to IP Bridge's last alleged "clarification" of its claim—the addition of "such that the sequences are indexed"—this language injects unnecessary ambiguity into an already indefinite and confusing claim. As amended by IP Bridge, the relevant portion of the claim will read: "a plurality of sequences, which are indexed . . . such that the sequences are indexed . . . ." The addition does not further clarify the claim. Instead, it adds redundant language, and IP Bridge has provided no compelling intrinsic evidence requiring the claims to be rewritten in this way.

IV.   THE '239 PATENT

A.   Background of the '239 Patent

The '239 patent is generally directed to a scheme related to the transmission of channel quality indicator ("CQI") from a mobile terminal or UE ('239 patent at Abstract). CQI reports can be sent periodically, *i.e.*, at a given interval, or aperiodically, *i.e.* only when requested ('239 patent at 6:53; Lanning Decl. at ¶ 42). The '239 patent is focused on aperiodic CQI reporting (*id.*). The '239 patent discloses that typically, a phone will multiplex an aperiodic CQI report with data before sending it to the base station, but, in some cases, it is beneficial for a phone to transmit an aperiodic CQI report without data to improve the likelihood of a successful transmission ('239 patent at 9:30-37; Lanning Decl. at ¶ 43). The '239 patent describes a mechanism for a mobile terminal to determine when it should transmit an aperiodic CQI report without multiplexing it with data.

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[8] IP Bridge also improperly relies on Fig. 23 to support its argument for distributing the "generally" claim terms (*see* Op. Br. at 16-17). That figure cannot alter the plain meaning of the claims.

B.   **"the aperiodic channel quality indicator report is not multiplexed with data transmitted by the mobile terminal" / "the aperiodic channel quality indicator report is multiplexed with data transmitted by the mobile terminal" (Claim 14)**

Claim Term	IP Bridge's Construction	Defendants' Construction
"the aperiodic channel quality indicator report is multiplexed with data transmitted by the mobile terminal"	"the aperiodic channel quality indicator report is multiplexed with user data transmitted by the mobile terminal"	Plain and ordinary meaning of the term "with data"
"the aperiodic channel quality indicator report is not multiplexed with data transmitted by the mobile terminal"	"the aperiodic channel quality indicator report is not multiplexed with user data transmitted by the mobile terminal"	Plain and ordinary meaning of the term "with data"

The sole dispute with regard to the identified claim terms is whether the court should read an additional limitation into the claim, *i.e.*, that the limitation "data" should be limited to "user data." But the term "data" has a plain meaning and the '239 patent does not redefine or limit the scope of this term. Thus, the Court should adopt Defendants' proposed construction.

The term "data" does not have a special meaning in the art, and a POSITA would have understood the term to have its plain and ordinary meaning, which includes control data and user data (Lanning Decl. at ¶¶ 45-46). The '239 patent describes both control data and user data in the specification (*see* '239 patent at 5:11-16, 5:29-34, 5:35-37, 6:38-7:27, 19:32-35; Lanning Decl. at ¶ 46-47). Departure from the plain and ordinary meaning based on the specification only occurs in two instances: lexicography and disavowal. *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). "To disavow claim scope, the specification must contain 'expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope.'" *Retractable Techs. Inc. v. Becton Dickinson & Co.*, 653 F.3d 1296, 1306 (Fed. Cir. 2011) (citation omitted).

Statements in a patent specification that describe a characteristic of the invention as the "present invention" if referring to the invention "as a whole" can limit the scope of the claim to

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the described characteristic. *Lemoine v. Mossberg Corp.*, 2021 U.S. App. LEXIS 27807, at *6-7

(Fed. Cir. 2021); *Honeywell Int'l, Inc. v. ITT Indus.*, 452 F.3d 1312, 1318-19 (Fed. Cir. 2006). But

where a statement of the so-called "present invention" is shown to be in reality just a description

of one way of carrying out the invention, the statement may not necessarily limit the scope of the

claim. *Cont'l Circuits LLC v. Intel Corp.*, 915 F.3d 788, 798 (Fed. Cir. 2019). Additionally,

statements in the specification do not narrow the claim scope where the references to a certain

limitation as being the "present invention" are not uniform, or where other portions of the intrinsic

evidence do not support applying the limitation to the entire patent. *Absolute Software, Inc. v.

Stealth Signal, Inc.*, 659 F.3d 1121, 1136-37 (Fed. Cir. 2011).

IP Bridge alleges that the '239 patent states "that 'the present invention' *is* 'an aperiodic

reporting of CQI that is not multiplexed with user data.'" (Op Br. at 24 (emphasis added)). But

that is not what the patent says. Rather, the passage excerpted by IP Bridge merely states that one

of the *aims* of the purported invention was to provide a *possibility* for the transmission of a CQI

reporting mode that *relates to* not multiplexing CQI with user data:

> The present invention *aims at providing a possibility* for signaling a Channel
> Quality Indicator (CQI) reporting mode with impact as small as possible on the
> scalability of resource allocation and signaling of other control parameters. In
> particular, the CQI reporting mode relates to an aperiodic reporting of CQI that is
> not multiplexed with user data even if the buffer is not empty, which will be further
> referred to as "CQI-only mode".

('239 patent at 13:65-14:5) (emphasis added).) Moreover, the '239 patent clearly discloses an

additional goal of the purported invention—to define a scheme where a CQI report is not

multiplexed with "Uplink Shared Channel data":

> It is desirable to define a control signalling scheme, which allows to request a
> terminal to transmit an aperiodic CQI report to a base station, wherein the report
> only contains CQI information, i.e. *without multiplexing the CQI information with
> Uplink Shared Channel data*, even in case the data buffer at the terminal is non-
> empty. In this way, the base station would have an improved control on the content
> and error resilience of the aperiodic CQI report.

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('239 patent at 9:30-37 (emphasis added); *see also* Lanning Decl. at ¶47.) Thus, like in *Continental* and *Absolute Software*, the '239 patent describes multiple goals of the present invention, and it is improper to limit the claims to one embodiment over the other.

IP Bridge argues that this other information on the Uplink Shared Channel is not referred to as "data" in the specification, and "more importantly, is never described as being multiplexed or not multiplexed with CQI, as the claims require" (Op. Br. at 25). IP Bridge's position is contrary to statements that it submitted in a prior litigation in Delaware involving the '239 patent, where IP Bridge and its expert, Dr. Min, conceded that CQI could be multiplexed with other types of control data. In Delaware, IP Bridge admitted that CQI could be multiplexed with the precoding matrix indicator (PMI) or rank indicator (RI) on the UL-SCH, which is contrary to IP Bridge's proposed construction in this case (*see* Ex. 6 (IP Bridge's Del. Op. Br.) at 29 ("But the specification never excludes the transmission of CQI with other control information, such as PMI and RI—both signals identified as control information sent on PUSCH or UL-SCH. (['239 Patent], 7:14–18.)"); *see* Ex. 7 (Decl. of Paul Min) at ¶¶ 35-36 (describing that control and user data were multiplexed on the UL-SCH and stating that "it was well known at the time of the invention that CQI was typically multiplexed with other data such as user data").

IP Bridge's admission in Delaware is consistent with the specification, which describes that CQI reports could be multiplexed with Uplink Shared Channel data, where, for example, CQI, PMI, RI, and other control data are sent on the channel ('239 patent at 5:35-37, 6:38-7:40, 9:30-37; Lanning Decl. at ¶ 47). Indeed, Table 4 plainly shows different Physical Uplink Share Channel, or PUSCH, "CQI modes," some that include "no PMI" (*i.e.*, CQI is not multiplexed with PMI), and others that include "single" or "multiple PMI" (*i.e.*, CQI is multiplexed with PMI). ('239 patent at 6:38-7:40). A POSITA would have understood that this and other information transmitted by

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the mobile terminal on the Uplink Shared Channel would be considered "data transmitted by the mobile terminal via the UL-SCH" regardless of whether it was explicitly called data or expressly said to be multiplexed (Lanning Decl. at ¶ 47; '239 patent at Cl. 14).

The prosecution history also contradicts IP Bridge's proposed narrowing. The original claims in the application that led to the '239 patent required that the CQI report be transmitted "without multiplexing the aperiodic channel quality indicator report with *user data*" (*see* Ex. 5 ('239 Prosecution History) at IPB213_0001995 (emphasis added); *see also id.* at IPB213_0001340). But the applicant opted to amend the claim language to require that the CQI report be transmitted "without multiplexing the aperiodic channel quality indicator report with *data to be transmitted via an Uplink Shared Channel (UL-SCH)*" (*see* Ex. 5 ('239 Prosecution History) at IPB213_0002024-26 (emphasis added) (March 15, 2012 Preliminary Amendment)). A comparison between representative claims is below.

Claim 30 (April 12, 2011 Preliminary Amendment) (emphasis added)	Claim 50 (March 15, 2012 Preliminary Amendment) corresponding to canceled claim 30 (emphasis added)
30. (New) A method comprising the following steps performed by a mobile terminal: . . . transmitting the aperiodic channel quality indicator report to the base station without multiplexing the aperiodic channel quality indicator report with *user data*, in case the channel quality indicator is set . . .	50. (New) A method comprising the following steps performed by a mobile terminal: . . . transmitting the aperiodic channel quality indicator report to the base station without multiplexing the aperiodic channel quality indicator report with *data to be transmitted via an Uplink Shared Channel (UL-SCH)*, in case the channel quality indicator is set . . .

It is notable that the change to the claims tracks the goal of the '239 patent cited in column 9, lines 30-37 described above. The prosecution history thus further demonstrates that IP Bridge's proposed narrowing is improper.

IP Bridge urges this Court to ignore the intrinsic record and merely adopt a construction

by the District Court of Delaware in the *TCL* case (*see* Op. Br. at 23-24 (citing *Godo Kaisha IP Bridge 1 v. TCL Commc'n Tech. Holdings Ltd.*, 249 F. Supp. 3d 767, 780 (D. Del. 2017)). The *TCL* opinion is not binding on this Court. *See TQP Dev., LLC v. Intuit Inc.*, 2014 U.S. Dist. LEXIS 84057, *21 (E.D. Tex. Jun. 20, 2014) (finding further claim construction was warranted even though it would be at odds with the construction adopted in other cases involving the same patent). Respectfully, the *TCL* court did not consider the patent as a whole, as required by the Federal Circuit, and there is no evidence that the court considered the prosecution history. This Court thus should assess the merits of the arguments and evidence presented here, which show that the '239 patent does not include the clear and unmistakable disavowal required to narrow the claim scope.

Finally, it is notable that IP Bridge did not submit an expert declaration supporting its position that a POSITA would have understood that the purported invention was limited to "user data." Defendants, on the other hand, provided a declaration from Mr. Lanning confirming that the term "data" does not have a special meaning in the art or in the context of the technology described in the '239 patent. And as explained above, Mr. Lanning's declaration further confirms that the patent teaches multiplexing CQI with control "data," such as PMI and RI, on the same uplink channel used to transmit "user data" (Lanning Decl. at ¶¶ 46-47).[9] IP Bridge also incorrectly criticizes Mr. Lanning for ignoring "the express statement in the '239 patent that, in the context of multiplexing with data, the 'ordinary meaning' refers to 'user data'" (Op Br. at 26). Contrary to IP Bridge's assertion, the cited passage does not include a statement of the ordinary meaning of "user

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[9] IP Bridge incorrectly argues that Mr. Lanning asserts that data in the "data buffer" referenced in the '239 patent is not user data (Op. Br. at 26; '239 patent at 9:30-37; Lanning Decl. at ¶ 47). Instead, Mr. Lanning argues that the specification discloses multiple types of Uplink Shared Channel data (including control data and user data), but that, according to the claims, an aperiodic CQI report should not be multiplexed with any other data, including both control data and user data in certain circumstances ('239 patent at 9:30-37; Lanning Decl. at ¶ 47).

data." The passage describes the "usual meaning" of how a mobile terminal will interpret the presence of a CQI trigger and a transport format parameter in the downlink message from the base station. Moreover, even when referencing multiplexing of user data, the '239 patent only states that the usual meaning of the CQI trigger and transport format parameter "may be" a multiplexing of CQI with user data.

Thus, IP Bridge has not shown that the '239 patent described the present invention as a whole as being limited to user data. IP Bridge's proposed narrowing construction should thus be rejected, and the plain and ordinary meaning of "data" should be adopted.

V.   THE '000 PATENT

A.   Background of the '000 Patent

The '000 patent relates to adaptive modulation and frequency scheduling in a multi-carrier network ('000 patent at 1:57–61, 1:17–22). The '000 patent teaches that, in certain multicarrier systems, "the amount of control information sent from communication terminal apparatus to the base station apparatus is enormous" ('000 patent at 1:62–2:11). According to the '000 patent, this can occur when a UE provides CQI feedback for each subcarrier within the communication bandwidth in a multicarrier system (*id.*). The '000 patent purports to addresses this problem with a system that supports two different types of CQI reports (*id.* at 7:29–38, 7:55–8:15). One report type includes a CQI value for each subcarrier or subcarrier block in the band, while the other report includes just "one item of CQI indicating reception quality averaged for all of the subcarriers within the communication frequency band" (*id.*).

B.   "subcarrier block" (Claims 1, 11)

IP Bridge's Construction	Defendants' Construction
Plain and ordinary meaning	"unit of resource allocation comprising consecutive subcarriers collected together"

IP Bridge alleges that "subcarrier block" means a "block of subcarriers" under plain

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meaning (Op. Br. at 27-28). But IP Bridge cites to **no evidence** supporting the cornerstone of its argument, which is that the term "subcarrier block" had a plain and ordinary meaning to a POSITA in 2003 (*see id.*). IP Bridge has not cited a single example of the term "subcarrier block" being used before the filing date of this patent (*see id.*), let alone demonstrated that any such usage was consistent with its proposed construction.

Defendants' construction, on the other hand, reflects how a POSITA would have understood the term in the context of the specification (Mahon Decl. at ¶¶ 99-105). The patent relates to the transmission of CQI from a UE to a base station. The patent explains that the base station can use CQI to conduct frequency scheduling so UEs can be allocated subcarriers of "superior reception quality" ('000 patent at 1:17-23). The patent also teaches that different granularities of CQI and resource allocation are possible: a UE can send either (1) one CQI for the entire frequency band supported by a base station, or (2) one CQI for every subcarrier in the frequency band ('000 patent at 1:22-28). When the unit of allocation for CQI is a subcarrier, the CQI transmission requires significant transmission resources (*id.* at 8:40-44, 8:54-58). So as an alternative, the patent describes that the "*unit of allocation*" can be "subcarrier blocks or resource blocks where *pluralities of subcarriers* are *collected together*," with CQI then being sent on a subcarrier block basis (*id*. at 8:40-44). Defendants' construction simply restates this definition, consistent with a POSITA's understanding (Mahon Decl. at ¶¶104-105).

IP Bridge creates a strawman by faulting Defendants for relying on the words "typically" and "possible" (Op Br. at 27). Defendants have not done so, and thus IP Bridge's cases are inapposite. *See Epos Techs. Ltd. v. Pegasus Techs. Ltd.*, 766 F.3d 1338, 1344 (Fed. Cir. 2014). Here, the '000 patent does not say that subcarrier blocks are "typically" or "possibl[y]" consecutive subcarriers collected together. Rather, the patent says that it is "typical" or "possible" to adopt

subcarrier blocks as the unit of allocation, and where that is done, "*pluralities of subcarriers* are *collected together*," *i.e.*, "consecutive subcarriers . . . are collected together . . ." ('000 patent at 8:41-44; 8:58-62). These are definitional statements for the term "subcarrier block" (*id.*; Mahon Decl. at ¶¶104-105).

IP Bridge's position also contradicts the purpose of the patent. IP Bridge admits that the patent is "generally directed to a [] scheme that reduces the amount of CQI" by sending CQI for each *subcarrier block* instead of for each *subcarrier* (Op. Br. at 26). But its construction actually *increases* the amount of CQI sent because the same subcarrier would be found in multiple "blocks of subcarriers." Take, for example, 3 consecutive subcarriers, 1-2-3. The set of 1-2-3 is a "block of subcarriers." But so, too, is the set 1-2, the set 2-3, and the set 1-3. IP Bridge's construction would have the UE sending CQI for each one of these overlapping blocks whenever it is to send CQI for *each* subcarrier block. This would actually increase the required CQI, which is contrary to the patent's purpose. Defendants' construction, consistent with the patent, avoids the overlap problem (and reduces CQI) by tying subcarrier block to each "unit of allocation." Defendants' construction also gives meaning to a term that was not known or commonly understood.

CONCLUSION

For the foregoing reasons, Defendants respectfully request that the Court adopt Defendants' constructions.

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<u>CERTIFICATE OF SERVICE</u>

The undersigned attorney hereby certifies that the foregoing document was filed electronically in compliance with Local Rule CV-5(a). Pursuant to Local Rule CV-5(c), all counsel of record were served a true and correct copy of the foregoing document by electronic mail on March 1, 2022.

Dated: March 1, 2022   */s/ John D. Haynes*
                                              John D. Haynes